FEMA 209 : 120074

FLOOD INSURANCE STUDY

ORIGINAL

COMPLETED
14

TOWN OF CROSS CITY, FLORIDA
DIXIE COUNTY

MARCH 16, 1982

Federal Emergency Management Agency

COMMUNITY NUMBER -120074

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1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study investigates the existence and severity of flood hazards in the Town of Cross City, Dixie County, Florida, and aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study will be used to convert the Town of Cross City to the regular program of flood insurance by the Federal Emergency Management Agency (FEMA). Local and regional planners will use this study in their efforts to promote sound flood plain management.

In some states or communities, flood plain management criteria or regulations may exist that are more restrictive or comprehensive than those on which these Federally-supported studies are based. These criteria take precedence over the minimum Federal criteria for purposes of regulating development in the flood plain, as set forth in the Code of Federal Regulations at 44 CFR, 60.3 (d). In such cases, however, it shall be understood that the state (or other jurisdictional agency) shall be able to explain these requirements and criteria.

1.2 Authority and Acknowledgments

The source of authority for this Flood Insurance Study is the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

The hydrologic and hydraulic analyses for this study were performed by Gee & Jenson Engineers-Architects-Planners, Inc., for the Federal Emergency Management Agency, under Contract No. H-4779. This study was completed in June 1980.

1.3 Coordination

Areas subject to flooding were identified at a meeting attended by representatives of the Town of Cross City, FEMA and the study contractor, on May 4, 1978. The legal announcement of the beginning of the Flood Insurance Study and statement of its objectives was published in the Dixie County Advocate, the local newspaper, on January 4, 1979.

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During the course of the study, contacts were maintained with the Town of Cross City for general community information and history of previous flooding. Contacts were also made with the following in an attempt to explore all possible sources of data:

The Suwannee River Water Management District
Florida Geological Survey
U.S. Geological Survey
U. S. Soil Conservation Service
Florida Department of Transportation
Florida Department of Environmental Regulation

On May 14, 1981, the results of the study were reviewed at the final meeting attended by community officials, FEMA and the study contractor. The study was acceptable to the community.

2.0 AREA STUDIED

2.1 Scope of Study

This Flood Insurance Study covers the entire incorporated area of the Town of Cross City, Florida. The area of study is shown on the Vicinity Map (Figure 1).

Approximate methods of analysis were used for this study since the areas are subject to minimal flood hazard. The scope of this study does not include consideration of flooding caused by local drainage problems such as inadequate culvert sizes, obstructions and the like.

2.2 Community Description

The Town of Cross City is located in Dixie County in West Central Florida. Dixie County is bounded on the west by the Gulf of Mexico, on the north by Taylor County, and by Levy County on the south. The Town of Cross City is situated approximately 50 miles west of Gainesville, about 100 miles southeast of Tallahassee, and about 140 miles north of Tampa. The total area within the Town of Cross City limits is about 1.3 square miles.

According to U.S. Census Bureau figures, the Town of Cross City had a population of 2,268 in 1970 with an estimated increase to 2,296 in 1978 (Reference 1).

Main transportation arteries serving the town are U.S. Route 19-27A-98, which extends northwest-southeast, and State Route 351 extending in a general north-south direction and linking the Town of Cross City to the Gulf of Mexico. The town is also served by the Seaboard Coast Line Railroad.

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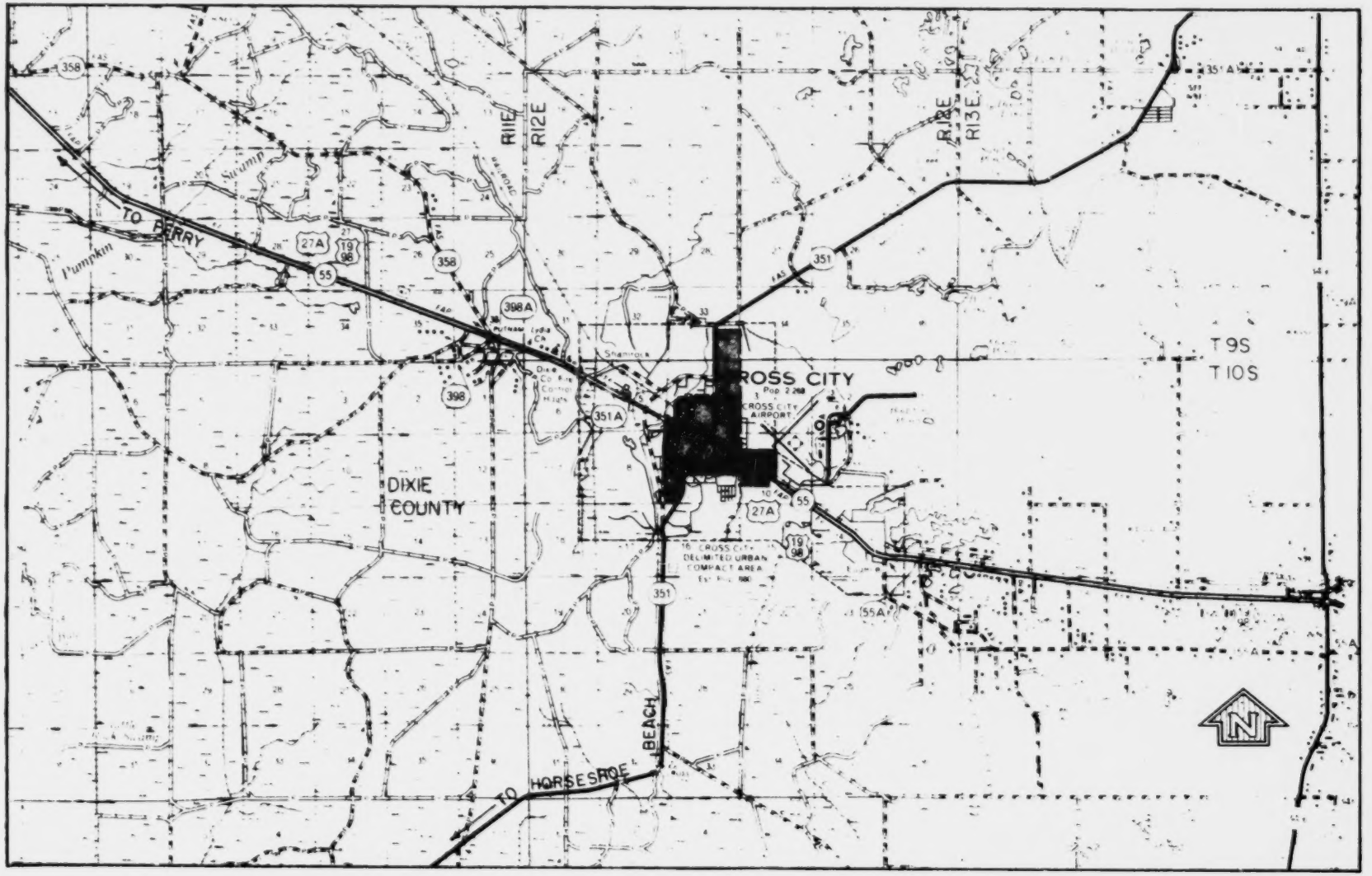

FIGURE 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF CROSS CITY, FL
(DIXIE CO.)

APPROXIMATE SCALE

2 0 2 4 6 MILES

VICINITY MAP

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The general area of the Town of Cross City is very flat, with little natural positive drainage. Canals constructed on the east and west side of the town conduct general runoff to open swampy areas to the south. Drainage from the town is conveyed to the canals in open water courses.

Approximately two-thirds of the area of the town is developed, consisting of mainly single-family residences and commercial establishments. Much of the area around the town is owned by the Buckeye Cellulose Corporation, a division of Procter & Gamble, and much of the economy is related to the forestry and paper pulp industry.

The climate of the area is relatively mild. Local recording station records through 1978 indicate a yearly average rainfall of 57 .9 inches and an annual mean temperature of 68.6 degrees F. The temperature ranged from 20 degrees F to 96 degrees F. These records indicate that precipitation is heaviest in the summer months, generally peaking in July or August (Reference 2).

2.3 Principal Flood Problems

As a result of the very flat terrain in the town, runoff is very slow during rainfall periods and will build up to shallow depths in overland flow. Flooding to greater depths will occur in the topographic depressions and water courses. Local drainage problems, such as inadequate culvert sizes, siltation and collection of debris in the channels contribute to flooding.

Recent flooding occurred during the spring of 1978, particularly in the northwest and southwest portions of the Town of Cross City. The local recording station (Cross City 2 WNW) indicated a total precipitation of ten inches of rainfall during the 24 hour period of May 4, 1978, which is estimated to be about an 80-year precipitation event (an event expected to occur once in 80 years on the average).

2.4 Flood Protection Measures

An engineering report entitled "Northwest Area Drainage Improvements, Town of Cross City, Florida", (Reference 3) was prepared for the Town of Cross City in 1977. This report recommends improvements of drainage facilities in the northwest area to be constructed in several phases. The initial phase, which included the improvement of two cypress retention ponds, has now been completed. The schedule for construction for additional improvements is not known at this time.

The engineering report referred to above indicated that the drainage improvements will be designed for three year frequency storms which will be sufficient for most annual flooding, but would not handle the 100-year event.

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3.0 ENGINEERING METHODS

For the flooding sources studied in detail in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude which are expected to be equalled or exceeded once on the average during any 10-, 50-, 100-, and 500-year period (recurrence intervals), have been selected as having special significance for flood plain management and for flood insurance premium rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10, 2, 1, and 0.2 percent chance, respectively, of being equalled or exceeded during any year. Although the recurrence interval represents the long term, average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than one year are considered. For example, the risk of having a flood which equals or exceeds the 100-year flood (one percent chance of annual occurrence) in any 50 year period is about 40 percent (four in 10), and for any 90 year period, the risk increases to about 60 percent (six in 10). The analyses reported here reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Rainfall frequency data contained in references 4 and 5 were used to determine the rainfall amounts for various recurrence intervals for the study area. These were plotted for use in comparison with actual recorded events from the local National Oceanic and Atmospheric Association rain gage designated "Cross City 2 WNW".

3.2 Hydraulic Analyses

The extent of flooding in the Town of Cross City was determined from the previous Flood Hazard Boundary Maps published by FEMA (Reference 6) considering anticipated 100-year rainfall, current topography, and information obtained during field reconnaissance. Current topography consisted of one-inch equals 500 feet scale maps with one foot contour intervals. Contours were obtained by aerial survey methods, based on photography taken in March 1979 (Reference 7). Only minor modifications to the flooding area previously outlined were found necessary, however, where supporting data was adequate, flood elevations were given.

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4.0 FLOOD PLAIN MANAGEMENT APPLICATIONS

The National Flood Insurance Program encourages state and local governments to adopt sound flood plain management programs. Therefore, each Flood Insurance Study includes a flood boundary map designed to assist communities in developing sound flood plain management measures.

4.1 Flood Boundaries

In order to provide a national standard without regional discrimination, the 100-year flood has been adopted by FEMA as the base flood for purposes of flood plain management measures.

Aerial topographic maps at a scale of 1 inch equals 500 feet with one foot contour intervals (Reference 7) were used to delineate the flood boundaries.

The boundaries of the 100-year flood are shown on the Flood Insurance Rate Map (Exhibit 1). Small areas within the flood boundaries may lie above the flood elevations, and therefore not be subject to flooding; owing to limitations of the map scale, or lack of detailed topographic data, such areas are not shown.

4.2 Floodways

The floodway is the channel of a stream, plus any adjacent flood plain areas, that must be kept free of encroachment in order that the 100-year flood be carried without substantial increases in flood heights.

The floodway concept is not applicable to shallow flooding and ponding as found in the Town of Cross City. Therefore, floodways were not determined as part of this study.

5.0 INSURANCE APPLICATION

In order to establish actuarial insurance rates, FEMA has developed a process to transform the data from the engineering study into flood insurance criteria. This process includes the determination of reaches, Flood Hazard Factors (FHFs), and flood insurance zone designations for each significant flooding source affecting the Town of Cross City.

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5.1 Flood Insurance Zones

Following the determination of the extent and depth of flooding, the entire incorporated area of the Town of Cross City was divided into zones, each having a specific flood potential or hazard. Each zone was assigned one of the following flood insurance zone designations:

Zone A:	Special Flood Hazard Areas inundated by the 100-year flood, determined by approximate methods; no base flood elevations shown or FHFs determined.
Zone AH:	Special Flood Hazard Areas inundated by types of 100-year shallow flooding where depths are between 1.0 and 3.0 feet; base flood elevations are shown, but no Flood Hazard Factors are determined.
Zone B:	Areas between the Special Flood Hazard Area and the limits of the 500-year flood, including areas of the 500-year flood plain that are protected from the 100-year flood by dike, levee, or other water control structure; areas subject to certain types of 100-year shallow flooding where depths are less than 1.0 foot; or areas subject to 100-year flooding from sources with drainage areas less than 1 square mile. Zone B is not subdivided.
Zone C:	Areas of minimal flooding.

Table 1, "Flood Insurance Zone Data," summarizes the flood elevation differences, FHFs, flood insurance zones, and base flood elevation for each flooding source studied in detail in the Town of Cross City.

5.2 Flood Insurance Rate Map Description

The Flood Insurance Rate Map for the Town of Cross City is, for insurance purposes, the principal result of the Flood Insurance Study. This map contains the official delineation of flood insurance zones and is developed in accordance with the latest flood insurance map preparation guidelines published by FEMA.

6.0 OTHER STUDIES

A previous study was prepared for the Department of Housing and Urban Development, Federal Insurance Administration using approximate study methods. Flood Hazard Boundary Map No. H01, (Reference 6) was prepared from this study. Flooded areas and boundaries from the previous map generally correspond with this study.

FLOODING SOURCE	PANEL[1]	ELEVATION DIFFERENCE[2] BETWEEN 1% (100-YEAR) FLOOD AND			FLOOD HAZARD FACTOR	ZONE	BASE FLOOD ELEVATION (FEET NGVD)[3]
		10% (10-YEAR)	2% (50-YEAR)	0.2% (500-YEAR)			
Ponding Area 1	0001	*	*	*	*	AH	40
Ponding Area 2	0001	*	*	*	*	AH	39
Ponding Area 3	0001	*	*	*	*	AH	42
Ponding Area 4	0001	*	*	*	*	AH	43
Ponding Area 5	0001	*	*	*	*	AH	41
Ponding Area 6	0001	*	*	*	*	AH	41
Ponding Area 7	0001	*	*	*	*	AH	39
Ponding Area 8	0001	*	*	*	*	AH	37
Ponding Area 9	0001	*	*	*	*	AH	37
Ponding Area 10	0001	*	*	*	*	AH	37
Ponding Area 11	0001	*	*	*	*	AH	38
Ponding Area 12	0001	*	*	*	*	AH	40
Ponding Area 13	0001	*	*	*	*	AH	40
Ponding Area 14	0001	*	*	*	*	AH	Varies
Ponding Area 15	0001	*	*	*	*	AH	37
Ponding Area 16	0001	*	*	*	*	AH	35
Ponding Area 17	0001	*	*	*	*	AH	36
Ponding Area 18	0001	*	*	*	*	AH	37
Ponding Area 19	0001	*	*	*	*	AH	36

[1]Flood Insurance Rate Map Panel [2]Weighted Average [3]Rounded to Nearest Foot
*Not Applicable

TABLE 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF CROSS CITY, FL

(DIXIE CO.)

FLOOD INSURANCE ZONE DATA

PONDING AREAS 1-19

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7.0 LOCATION OF DATA

Information concerning the pertinent data used in preparation of this study can be obtained by contacting the Natural and Technological Hazards Division, Federal Emergency Management Agency, 1375 Peachtree Street, N.E., Suite 778, Atlanta, Georgia 30309.

8.0 BIBLIOGRAPHY AND REFERENCES

1. Florida, University of; Florida Estimates of Population, April 1, 1979, prepared by the Population Division Bureau of Economic and Business Research, February 1980.

2. National Oceanic and Atmospheric Administration, Environmental Data Service, National Climatic Center, Asheville, North Carolina; Climate of Florida; 1978.

3. Dawkins and Associates, Inc., Northwest Area Drainage Improvements, Town of Cross City, Florida, November 1977.

4. U.S. Department of Agriculture, U.S. Soil Conservation Service, Rainfall Frequency Atlas of Alabama, Florida, Georgia and South Carolina for Durations from 30 minutes to 24 hours and Return Periods from 1 to 100 years; Revised January 1978.

5. U.S. Department of Commerce, Weather Bureau, Two to Ten Day Precipitation for Return Periods of 2 to 100 Years in the Contiguous United States; Technical Paper No. 49, 1964.

6. Federal Insurance Administration, Department of Housing and Urban Development; Flood Hazard Boundary Map H01, Revised January 30, 1976.

7. Abrams Aerial Survey Corporation of Florida, 1979, subcontracted by Gee & Jenson Engineers-Architects-Planners, Inc., scale 1"=500', contour interval one foot. (Flight negative scale of 1"=400').